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# BETTER FRUIT

VOLUME XIII

SEPTEMBER, 1918

NUMBER 3



The Big Red Apples of the West have gone to the front line trenches in France by the carload. Westerners sent them. Y. M. C. A. men braved shrapnel and shells to hand them out to the men in khaki. They handed out other things—comfort and cheer and the feel of home. Help the “Y” help the boys from the West.

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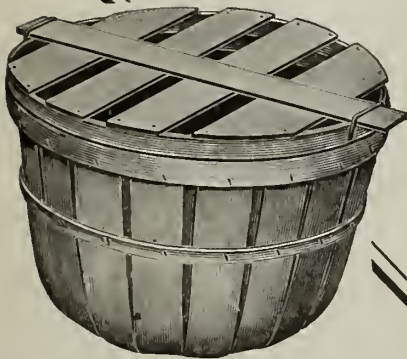
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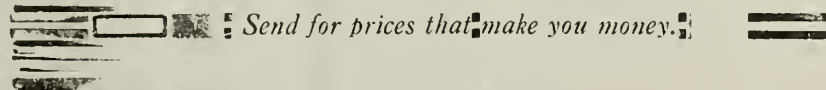
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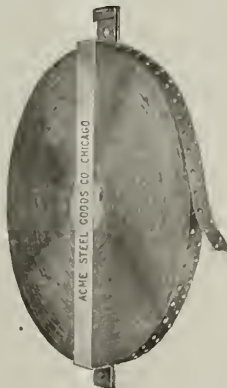
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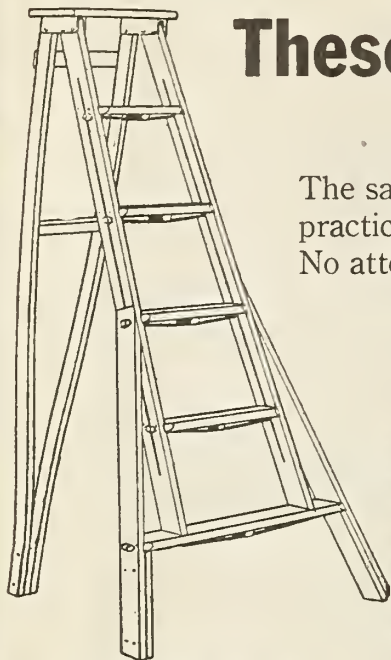
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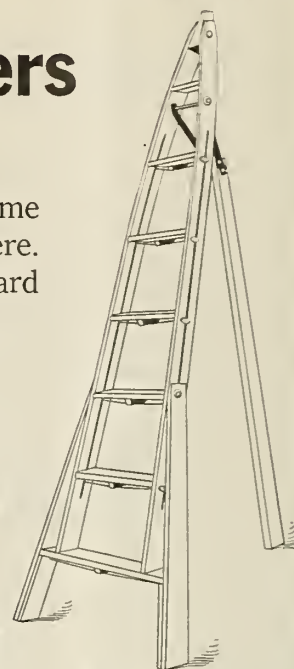
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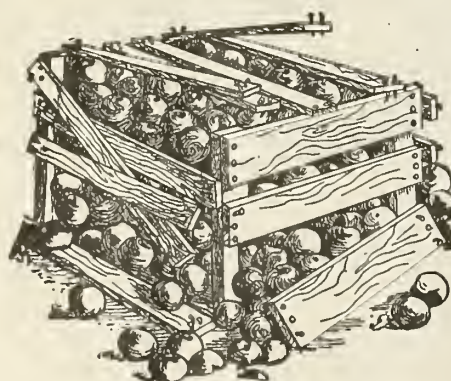
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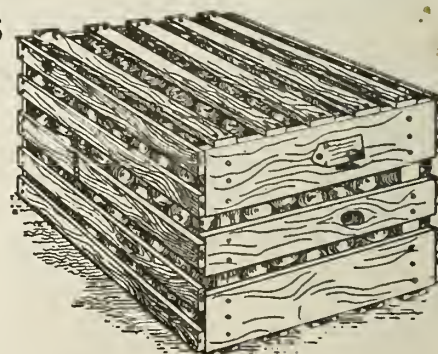
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# BETTER FRUIT

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NUMBER 3

## Pear-Blight Control in Rogue River Valley, Oregon

By C. C. Cate, County Pathologist, Medford, Oregon

**P**EAR blight (*bacillus amylovorus*) made its first appearance in the Rogue River Valley in the season of 1907. For two or three seasons this disease was regarded by the growers as "Sour Sap" and very little attention was given it. In 1908 and 1909 this so-called "Sour-Sap" trouble became more serious and made its appearance in many parts of the valley. Some of the growers at this time undertook to cure this trouble by splitting the bark of the infected trees. This procedure caused greater trouble, as it merely spread the bacteria from infected parts to healthy tissues and many trees were lost as a result of such practice.

About this time some of the progressive fruit growers of the valley petitioned the Department of Agriculture for assistance in handling this disease. Mr. P. J. O'Gara was detailed for this work, and after making an extensive investigation was employed by Jackson County to assist in educating the growers along the proper methods of controlling pear blight. This so-called "Sour-Sap" trouble turned out to be the most dreaded disease of all pomaceous fruits—Pear and Apple Blight.

Practically all commercial varieties of pears have been ravaged by this disease. Of course, some varieties are more susceptible. The Bosc, Howell, Anjou, Bartlett, Comice and Winter Nelis show susceptibility in about the order named. Keifer stock, that was formerly supposed to be resistant to blight, has proved susceptible to more or less extent. In fact we have no commercial varieties growing in the Rogue River Valley that are immune or either highly resistant.

Spitzenberg apples head the list for susceptible apple varieties. For several years Newtowns appeared to be more or less resistant, but at the present writing Newtowns blight very severely if control measures are not scrupulously followed. Winesaps are very resistant and very little infection is found in this variety.

During the early part of the campaign, for the control of blight a large force of inspectors were employed by the county. The orchards were patrolled by inspectors and blight cutters and an effort was made to keep all the

infected parts cut out. At that time the work and attention of inspectors and blight cutters was directed toward the trunk and branches of the trees. As many as fifteen inspectors were employed by the county to prosecute this work. The orchardists and inspectors worked very vigorously, and to show how thoroughly this work was done many times tree-to-tree inspections in large orchards revealed no cases of "hold-over" blight. Nevertheless, serious infections would develop during the succeeding season, and at that time it was impossible to know the origination of the source of infection. On account of the repetition of severe outbreaks of blight following such careful inspections and elimination of all visible "hold-overs" the orchardists in some sections became discouraged with this fight against pear blight and it became necessary to develop new methods of control in order to keep the orchardists in the orchard business.



Comice, showing treatment of infection in trunk and roots.

About two years ago we started to make investigations upon the matter of "hold-over" sources and also to investigate new methods of control and prevention. As a direct result of our investigation for "hold-over" sources we found that the root systems of many trees were infected and that certain insects were carrying the disease from the roots to the blossoms at blossoming time. Then we started a campaign of root inspection and in the older orchard districts where blight has been most serious for a number of years, practically every tree in the district was examined about the roots and all cases of infection were removed. This operation naturally called for a lot of work in excavating about the roots of the trees, but the orchardists appreciated the value of the work and spent a great deal of time and money in making this cleanup in connection with a very careful cleanup in the aerial part of the trees. As a result of this work we have learned by experience that blight can be very effectively controlled and that it could not be controlled by confining our efforts to the top of the trees. A great deal of effort and money has been expended by the orchardists making a very thorough cleanup in the tops of the trees and then only to experience a repetition of infections just as serious as if no cleanup had been made. This was due to the fact that we left many sources of "hold-over" hidden away in the root system.

In excavating around the roots of the trees we have found many species of insects that may be responsible for spreading blight from the roots to the tops of the trees. Insects most frequently found about the base of the infected trees instrumental in spreading the blight are the common click beetles. We found over 200 of these click beetles around the base of a small tree not over four inches in diameter that was infected with blight below the surface of the soil. The accompanying photograph of insects will give some idea as to how these insects will collect about the blight-infected roots. These insects were taken from the base of one tree during blossoming time. These beetles would be found feeding in the opening blossoms and are found



most abundantly in the early-morning hours, so it is very easy for these insects to carry the blight germs upon their feet and mouth parts from the base of the trees to the blossoms, which are very susceptible at this season of the year.

A few years ago several hundred trees were used in an experiment for the control of crown gall. In this experiment various chemicals were applied to crown-gall infections on the roots of such trees. Among other compounds sulphur was used very generously in this experiment and in checking up on the results of this experiment we noticed that wherever powdered sulphur was used, that we seldom found any insects around the base of the trees, while on the check trees and on many of the other trees in the experiment, click beetles and other insects were found quite generally. From this experiment with sulphur on crown gall we conceived the idea that sulphur around the base of the trees might act as an aid in controlling blight. When this fact was made known to some of our orchardists, two carloads of sulphur were purchased by the growers and applied at the rate of 2 to 4 pounds around the base of each tree, usually about 2 or 3 inches below the surface of the soil. This sulphur has been around these trees for the past three years and apparently is quite a factor in controlling blight. Tanglefoot bands around the trunks of trees have also proved to be an aid in controlling blight by catching insects that crawl up and down the trunks.

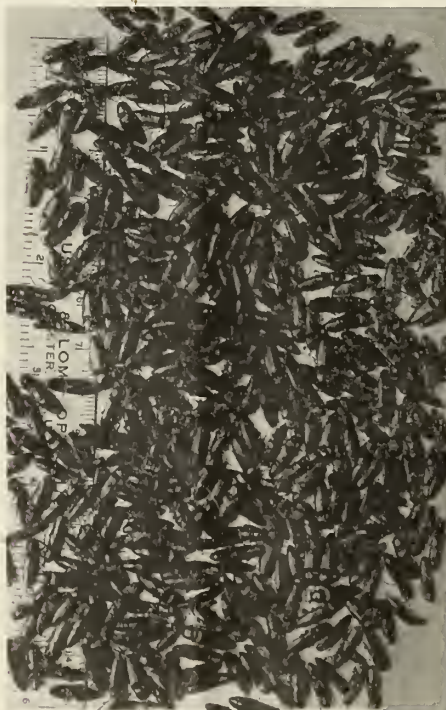
The use of sprays for the control of pear and apple blight has been discouraged by the Department of Agriculture and Experiment Stations for many years, and investigators have not been experimenting to any extent with sprays for the control of blight. Our idea in experimenting with this spray for the control of blight was not that we would control or retard the development of blight after it had once gained access to the sap of the trees. Our idea in spraying was to destroy the agencies that carry the blight germ from tree to tree.

After finding many species of insects that were spreading the blight we directed our attention to the control of such insects by various spray applications. Upon investigation we have found in every orchard vast numbers of the common grain or weed thrip. These insects are very small and work in the blossoms and in the axils of the young growing leaves and, due to their habits, they are considered one of the most active species of insects in disseminating blight. A spraying campaign was directed against these grain thrip and one of our most active species of insects in the spreading of blight has been controlled. The spray used for this work is nicotine sulphate, 1 part to 800 parts; distillate oil emulsion, 1½ per cent. Arsenate of lead may be combined with these ingredients if necessary to control codling moth and other leaf-eating insects. If this spray is applied when the first outbreak of blight is noticed, new infec-



Blight cutter at work on root system of Nelis. We condemn such trees now and have them removed entirely. It is very difficult to eradicate all blight in a case of this kind.

tion may be prevented and the blight cutters can eliminate all visible infections. If new infections are not prevented in some such manner it is almost impossible for the blight cutters to keep up with the work, as in many cases branches would be infected with no visible signs of any infection, and would wilt down in a few days with this same process repeated continuously during the summer. This spraying seems to prevent the spread of the blight for a few days and allows the blight cutters time to remove all sources of infection. This spray has been used for two seasons in many of our orchards with excellent results. We should bear in mind that this spraying alone should not be counted upon



Click beetles taken from the base of young apple tree infected with blight in roots.

to entirely control blight. It is merely an aid.

The county pathologist made a very thorough study of disinfectants and decided to recommend the use of cresol instead of the bichloride of mercury. This cresol of a 50-per-cent strength is used 1 to 2 parts to 100 parts water. We have found that we have less reinfection of wounds and that insects do not bother fresh wounds as much where cresol is used as they would with the bichloride of mercury. This cresol is a soapy solution and is not injurious to the hands or does not corrode the instruments.

The following program of procedure is recommended: (1) Careful inspection of top of trees and root system and removal of all infected parts. Do not encourage treatment of large infections; better to remove the old trees. (2) One to three pounds of sulphur around the base of trees. (3) Tanglefoot bands. (4) Spraying; use oil emulsion, nicotine and arsenate of lead to eliminate insects that spread the blight. (5) Use disinfectant cresol solution one to two per cent so as to repel insects that reinfect the wounds. (6) Keep on the job all the time and remove all infections as soon as they are located.

#### Favors Registered Bonds

Secretary of the Treasury William G. McAdoo favors registered Liberty Bonds instead of coupon bonds for the man who does not have a safety-deposit box, according to advice just given to officers and employees of railroads through an official circular signed by McAdoo as director general of railroads. "A large number of railroad men by the purchase of Liberty Bonds are now holding an investment security for the first time," reads the circular. "A large majority of the bonds so held are coupon bonds. Coupon bonds must be carefully guarded against loss or theft. They are payable to bearer. If they are lost, payment of them cannot be stopped, and they cannot be replaced by the Treasury Department. Coupon bonds are suitable for investors who possess safe-deposit boxes. Registered bonds are provided to meet the needs of persons who have no safe places of deposit. Registered bonds are issued in the name of the owner, which appears on the face. The interest is paid by United States check, drawn to the order of the owner, and sent him by mail. If a registered bond is stolen the thief cannot use it except by forgery, and the payment of the bond or the interest checks may be stopped. The bond itself may be replaced on proof of loss and if proper security is given. Registered bonds are the best suited for the great majority of railroad men. The number of coupon bonds outstanding in the hands of railroad men—many of them kept, doubtless, in places affording no real security—is such a vast aggregate amount that it causes serious concern. This is a wholly unnecessary risk."



# Central Packing Sheds and Weighing-In System

By Ira Cleveland, Entiat, Washington

**T**HE adoption of the central packing system has been thoroughly justified during the last three years by the often-expressed preference of buyers for fruit so handled. In each case, during the past year, the buyer has asked that the manifests be marked as central-packed fruit or individually packed, and the preference in every case has been for the central-packed product. This preference is not due wholly to the fact that fruit so packed is of a higher grade than might be obtained in individually-packed fruit, but the preference is shown on account of the assurance of uniformity in the centrally-packed fruit as opposed to the inevitable variations in grade which always has been and always will be found in the home pack. Absolute perfection is not so important as absolute uniformity. But even in the degree of perfection accompanying the product of the central shed, there is a very common criticism which to my mind is wholly unjustified.

When any farmer visits the packing shed of another, he does so in a critical frame of mind, and no matter what the conditions in that shed may really be he invariably leaves it convinced that his own product is greatly superior to that of his neighbor. In the central shed all farmers are visitors. Each and every one of them enters in that critical frame of mind and convinces himself that the product of the central shed is greatly inferior to his own home pack. In a few cases the product really is inferior to the home pack, but in the great majority of cases it is much better. The average is greatly raised, and the

preference of the trade shows beyond a shadow of doubt that the results are beneficial to the whole community.

In discussing packing house and equipment it is rather hard to know just where to start and stop. Much outside work is so closely connected with packing operations that it is impossible to separate the two. To begin with we might take up the matter that the management of the shed have control of the picking, in order that varieties may be picked and delivered in their proper order of maturity. To do this it is essential that a field man be maintained working between the house and grower. The packing should be done in such a manner as to get the least possible bruising. After the fruit is packed it should be allowed to set in the open over night where it can receive the benefit of the night chill. The best results are obtained where the hauling to the packing house is done in the cool of the morning. However, this is not always practicable, and in such cases the boxes of apples should be placed in the shade of the trees or grouped and covered for protection during the heat of the day.

Another point that has been very favorably suggested is that growers must build dormitories for help. If we expect girls and boys from the cities to assist in the apple harvest some provision must be made for their accommodation. The growers have been largely to blame in our district for their inability to keep help. Now is the time to get busy on such plans and do not play the role of the man that shovels snow in July. Varieties have

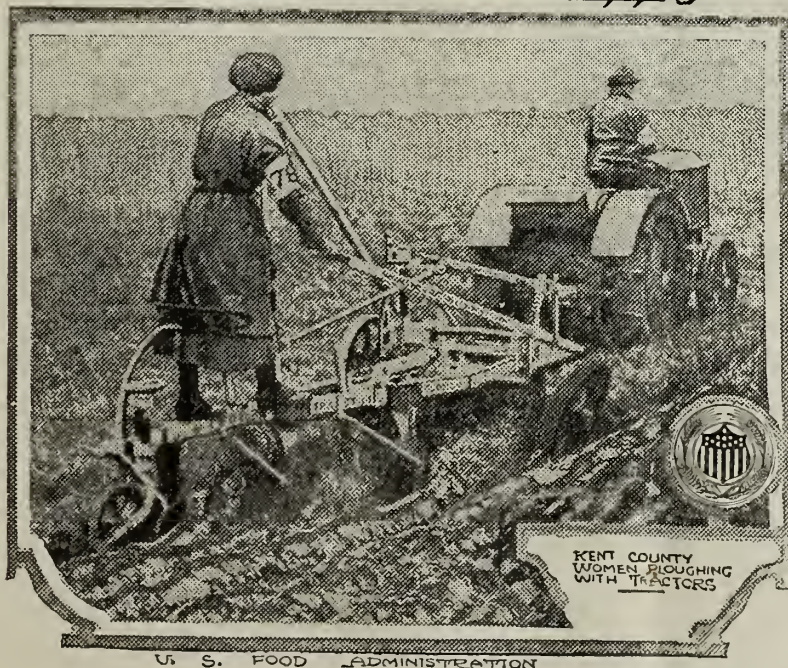
stayed on the tree this year far past maturity on account of not being able to pick faster. Besides, the stringing out of deliveries of varieties adds much expense to the packing-house cost.

The hauling should be done with conveyance equipped with springs. In loading particular attention should be given to the weight of the load, as springs overloaded are almost as bad as no springs at all. Springs that are not loaded heavy enough are also very hard on the fruit. After the apples are delivered very little time should be lost in getting the fruit packed out and into the cool rooms or car, whichever the case might be. The method of receiving the fruit is handled in two ways, by keeping the individual fruit separate or by the weight system, which has been adopted this year by several plants in the North Central Washington district. In 1916, I introduced into the Entiat warehouse the system of weighing-in loose fruit at the central shed, and by the development of this method believe that the operation of the central shed has been greatly facilitated and made much more efficient than could be hoped under the system previously in use. A great saving in floor space is effected, the cost of operation is reduced, errors are avoided. In handling the unpacked fruit there is an absolute saving of from twenty-five to thirty-three and one-third per cent in floor space. This would often mean the difference between a hopeless congestion and the free moving of fruit.

The work is facilitated and the expense of operation reduced by the greater speed with which the farmer can unload his fruit and give way to following teams; by facilitating the checking of unpacked fruit; by eliminating the necessity of segregating the fruit into growers' lots preparatory to packing; by eliminating the necessity of stopping the machines in cleaning up each grower's lot; by obviating the accumulation of fruit in two or three of the bins of the packing machine on account of mixing the apples from different orchards; by eliminating the necessity of rechecking grades and sizes after the fruit is packed out in order to prepare original record of packout; by encouraging the cleanup of the varieties in the house, and eliminating the necessity of segregating cull fruit.

The weighing-in system is much freer from possibility of error than is the old method because all errors in mixing growers' lots before packing are avoided, as is also any possibility of error in checking growers' fruit after it has been packed. Throughout the whole system the responsibility is removed from several general helpers and placed in the hands of one competent operator, thereby reducing to a minimum the possibility of error. Absolute accuracy is the essential point in all procedure and each step must be carried out with precision and complete

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records maintained. The forms for these records have been carefully worked out and improved from time to time as experience has justified. All tickets are numbered and must be accounted for. Where an error occurs in making out tickets the ticket must be marked void and turned into office. No tickets should be destroyed. Accuracy is the essential and must be diligently followed in order to facilitate the work in the office. When boxes are made up at the packing shed a ticket is issued for loose boxes, and also space for entering up number of boxes delivered with cull apples, if grower desires any culls returned to him; this is in duplicate, original to office and copy to grower.

The different forms of receipt tickets may be drawn up in order to meet the requirements of organization, in reference to break in sizes, etc. The first ticket used is hauler's ticket, where hauling is done by contract. This ticket should show date, grower's name, number of picking boxes and variety, and number of boxes reported different varieties, where load is mixed. All tickets should be numbered; white to office, yellow ticket to grower and onion skin to remain in book. This ticket is issued by truck hauler to growers when load is taken from orchard. On arrival at warehouse, the load is drawn up on the scale and white ticket delivered to weigher, who in turn makes entry on loose-fruit receipt provided for that purpose. This receipt

shows on whose account fruit is received, number of boxes, variety, gross weight, tare and net weight, boxes included, with space for remarks as to condition of boxes, number of box test, etc.—signed by weigher. This form is in triplicate; blue to grower, onion skin to office with hauler's ticket, and white bristol board to go in holder provided for that purpose and attached to one of the boxes containing the test fruit. This test is five per cent of load and is picked out by weigher; one box for largest size, one box for smallest size,

one for best color, one box for poorest color and balance a fair average. These boxes are placed together, in the space provided in packing shed, where sampling is done. Here the apples are placed in special boxes and weighed to get net weight of fruit, and sorted and sized, and each grade and size break weighed accordingly. These weights are entered on sample-test ticket, which shows grower's name, variety, loose fruit receipt, number picking boxes, weight of boxes included, weight of boxes and net weight, and the net weight of different sizes in different grades and the weight of culls in sample test. These tickets are in duplicate and are turned in to the office each night along with the loose fruit bristol board, from holder on sample box, where it is carefully audited and duplicate mailed to grower.

Entry is made in fruit register, which is ruled especially for weight system, entering the number of pounds and tenths in the different grades and sizes of test, also showing net weight of sample and net weight of fruit. At the end of the season reconciliation is made as follows: The total weight of all fruit received within all grades and breaks of the variety is divided by the total number of boxes of this variety packed out. This gives the exact average weight per box of all apples of the variety pool. For each grower's account the total of all grades and breaks in the variety is found, and this sum is divided by the average weight per box obtained above. This gives the total number of boxes of the variety to which the grower is entitled. Then the net weight of his fruit in each grade and break is divided by the average weight per box for the variety; this gives the number of boxes of his fruit in each grade and in each break of the grade. The sum of these quantities so obtained must equal the total number of boxes to which the grower is entitled. If the latter result does not check with the former one must give and take in the grades until it does. Arbitrary weights should not be employed in arriving at the number of

Continued on page 20



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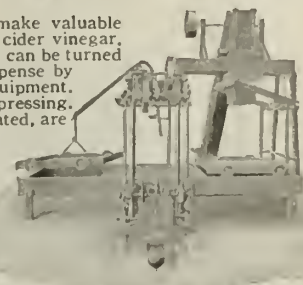
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## The Evaporation of Apples

By A. F. Barss, Assistant Professor of Pomology, Oregon Agricultural College

THE promise of a good crop of apples in the East, coupled with more or less uncertainty as to shipping accommodations for moving Northwest apples, makes it imperative that special precaution be taken in handling the apple crop this fall. If the Northwest is to come out ahead, the growers will be compelled to use extra care that they pack and ship only the better grades of apples. While it is true that three or more grades for apples have been recognized in the past, and that unquestionably the lower grades of apples have a marketable value even in the fresh state, nevertheless when placed in active competition with the higher grades in the open market these lower grades tend to depress the market and seriously interfere with the sales of the better fruit.

As a safeguard to the apple industry of the Northwest in these uncertain times, it seems highly advisable where possible to divert the poorer fruit into less exacting channels, thus leaving the fresh-fruit market unhampered for the better grade of apples. One means that may be employed for relieving the situation is to evaporate not only strictly cull fruit but also those apples which would not sell at top prices due to small size, slight blemishes or imperfections, but which could be made to return profit when evaporated. This particular method of handling surplus apples will be discussed briefly in the hope that market conditions may be improved for the fruit grower this fall.

In treating a subject of this kind, it would be logical to take up first of all a discussion of the buildings and general equipment, for it is easily recognized that for best results, both from the standpoint of product and economy, the machinery for turning out the product must be of such a kind and in such condition as to make possible efficient and economical operation. Unfortunately it is too late to attempt to construct an entire building to handle this year's crop, but frequently it will still be found possible, with a little skill, to remodel almost any two-story building into a satisfactory emergency evaporator. A hop-drier, with

very little alteration, could be adapted to the drying of apples since it closely resembles in method of operation the accepted New York apple-kiln drier. Among other things, it might be found necessary to remake the drying floor, using one-inch square slats, spaced one-eighth to one-quarter inches apart, these slats being beveled to the key-stone shape, one inch on top, one-half inch on the bottom; this shape preventing any bits of fruit clogging in the cracks. The slats are made of some tasteless, non-gumming, non-warping wood such as poplar, basswood, maple, etc. The new floor should be treated several times, to prevent the fruit sticking, with a mixture of tallow and linseed oil applied hot, while during the season the floor should be scrubbed frequently with hot soap suds.

The kiln type of evaporator is almost universally used where apples alone are to be dried, since it is the cheapest and simplest to build and operate, requiring also the minimum amount of labor for a given output. The other types of driers, however, can be used entirely satisfactorily, their chief advantage being that where trays are used the product needs no stirring during the drying, dries more rapidly and comes out with less breaking of slices or discoloration, all of which in some measure offsets the expense of operation.

Again, unless machinery is already ordered, it might be difficult at this late date to properly fit out a new drier for

work this fall, although often use can be made of hand machinery and locally-constructed equipment. In any case, it is imperative that the established evaporator men analyze their methods of operation, eliminate waste motion and antiquated machinery, introduce where possible labor-saving conveyors, endless belts, continuous bleachers, and power outfits, and so rearrange and remodel their plants as to give greatest efficiency with the least hand labor. The drying rooms must be repaired and the heating devices put in order, and this all done in advance of the drying season.

When it comes to a question of what variety to dry, it must be admitted that almost any variety of apple may be satisfactorily dried, although preference is given in the market for the dried product from good flavored fall and winter varieties and those giving a firm textured, white colored finished product such as is found in the case of Ben Davis, Winesap, Spitzenberg, Baldwin, Gravenstein, etc. Most of the other varieties have been found from experience to give a golden or dark-colored product which, while of good flavor, is less readily received by buyers.

A review of the steps in evaporation may suggest ways of improving present methods, or preventing mistakes. In picking and delivering to the drier, bruising should be avoided, since upon standing these bruised spots discolor badly and cannot be whitened again. When receiving at the evaporator, it is often found best to separate the varieties, since to mix those which give a dark product with those drying white lowers the grade of the whole. For the sake of cleanliness, washing is to be advised, especially where windfalls are being used. Again, while it is not absolutely essential, better results may be expected in the succeeding step if the apples are graded for size so that the peeling machines may be carefully adjusted to handle one particular size. A peeling and coring machine, working with good stock, well graded, will be found to effect a considerable saving



The above is a picture of a hop dryer, which with very little alteration could be adapted to the drying of apples.

Continued on page 17



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## Good Food from Waste Apples

By Frank B. McMillin, Mount Gilead, Ohio

**I**N these days when the world faces an increasingly serious food shortage it is unwise to overlook any resources that will add good, nourishing food to the nation's depleted supply. Therefore it is surely in order to again call special attention to the importance of properly utilizing that large proportion of the apple crop which grades below standard. In many states the percentage of cull or cider apples runs fully one-third of the total and it is frequently estimated that thousands of tons of such apples are wasted each year. In view of the fact that millions of the world's population are facing starvation, no one will deny that this loss, along with all other food waste, should be reduced to a minimum. Another important consideration is the good profits that the utilizing of these apples affords the grower.

While a portion of the larger culls may be evaporated to excellent advantage, the most practical way of

diverting this enormous waste into good food is by pressing. Practically all the valuable and nutritive elements of fruits are contained in the juice. The other parts consist largely of cellular tissue and are of little value except to retain the juice, which in ripe apples runs as high as ninety per cent. Therefore a short cut to conserving the rich, life-sustaining elements possessed by even the smallest of cull apples is by first grating and pressing, then working up the juice.

A modern hydraulic cider press will extract an average of a little over four gallons of cider from each bushel of ordinary under-grades. This juice can be readily converted into a variety of food products that are not only appetizing and nourishing, but most of them are in concentrated form convenient to market and easy to preserve. Sweet cider, cider vinegar, boiled cider, apple syrup, apple jelly, apple butter and pasteurized cider are all in active de-

mand and can be sold at a better net profit than is usually obtained from the apples in a fresh condition.

Even the pomace need not be wasted. It is being used extensively as feed for dairy and beef cattle, and for hogs and sheep. Many pronounce it equal to ordinary corn silage. Pomace also has a distinct value as jelly stock because of its pectin content, which is not impaired by drying. Frequently the pomace is repressed, the resulting juice being used for making vinegar or jelly.

Fresh sweet cider and pasteurized cider are highly recommended as a health drink by eminent physicians and scientists. Sweet cider is a tonic as well as a nutrient, containing natural salts and acids of special value in the correcting of stomach complaints and liver and kidney trouble. Pure, sweet cider can readily be made available as a delightful home beverage the year around and is far superior to the ordinary type of soft drinks. Chemical preservatives should be avoided, but pasteurizing to 160 degrees for two hours and sealing tight is effective for preventing fermentation.

One of the staple food products from waste apples that is in universal demand is cider vinegar. Pure cider vinegar commands a premium on the market, the wholesale price averaging 30 cents per gallon; at the same time the spirit vinegars are quoted at 17 cents a gallon. In the process of transforming cider into vinegar, two distinct fermentations take place. First is the vinous or alcoholic fermentation, which is the changing of the sugar of the cider into alcohol, caused by the action of certain natural yeast bacteria. Second is the acetic fermentation by which the alcohol thus formed is changed to vinegar acid or acetic acid. The alcoholic fermentation may be accelerated by the addition of yeast, using a cake to each five gallons, dissolved in warm water before adding. The acetic fermentation is also aided by the addition of good vinegar containing some mother of vinegar. It is important to allow plenty of room for air in the barrel during all stages of fermentation and also to maintain the temperature between 60 and 80 degrees. Care should be taken not to start the second fermentation until all the sugar in the cider is changed into alcohol, otherwise the change to vinegar will be retarded or prevented altogether.

There exists in this country a potential market for boiled cider that would consume a hundred times the amount now produced if the product could only be obtained. Boiled cider is the fresh juice concentrated by evaporation in the ratio of five gallons reduced to one. In this form it will remain in a perfect state of preservation for years. It is dark brown in color and of a syrupy consistency. It has an extensive use both commercially and in the kitchen, being especially desirable for making mince meat and apple butter as well as having a multitude of other culinary uses.

By continuing the evaporating process till the cider is reduced to the



ratio of seven to one the product becomes jelly, which makes a delightful tart spread. To please varied tastes it may be sweetened and any desired flavoring may be added. A ready market at attractive prices awaits all apple jelly offered.

Sugar and sugar products are scarce and high these war times and a practical use of the generous sugar content of apples is, therefore, especially acceptable. An extensive series of experiments by the Department of Agriculture resulted in the development of a method of making apple table syrup which produces an attractive article of very fine flavor. The process is as follows: Stir into seven gallons of sweet cider five ounces of powdered calcium carbonate—harmless low-priced chemical—and boil in a large kettle five minutes. If a large vessel is not available the cider may be boiled in batches. Pour the cider, after boiling, into glass jars and allow it to settle until perfectly clear, which requires about seven hours. Return the clear liquid to the preserving kettle, being careful not to pour off any of the sediment. Fill the vessel only about half full, as it foams up when boiling. Add a level teaspoonful of the lime of carbonate for the seven gallons of liquid and boil rapidly until a temperature of 220 degrees is reached, or until it is about one-seventh of the original volume and the consistency of maple syrup when cooled rapidly and poured from a spoon. To insure clear syrup the cooling must be done slowly. A good way is to set the jars of syrup in a wash boiler of hot water and allow the whole to cool. Use this syrup like any other table syrup, and as a flavoring adjunct.

Apple butter has long been a stand-by as a staple food and table delicacy and merits a place in the diet of every family. A favorite home recipe is as follows: Boil three gallons of apple cider down to one and one-half gallons. Pare and quarter sufficient apples to make three gallons. Pour over these sufficient additional cider to cover apples well. After cooking until tender run through colander, then add the boiled cider and boil down to desired thickness. When nearly done add one and one-half pints sugar, and when done flavor with one teaspoonsful allspice and one teaspoonful cinnamon.

Owners of up-to-date cider mills are in the position of rendering valuable national service by converting apple waste into good food while at the same time they are reaping well-deserved profits, for cider-press service will undoubtedly be in great demand this season. The comparatively small investment of a good hydraulic cider-press outfit can bring returns far in excess of many more difficult and expensive enterprises.

The Washington State Fair this year will have exhibits that cover a larger field of production and industry than ever before. Anticipating this, premiums have been increased in many classes and special new prizes are offered in several departments. The

largest poultry premiums in the state are offered. Increases are noted in fat cattle, horses. The best five sheaves of either winter or spring wheat, accompanied by thirty pounds of threshed grain from the same field, will be awarded \$50 first, \$30 second, and \$20 third. The best general display of corn, ten ears each variety, will receive \$15 first, \$10 second. The best single ear of corn from among the first prize winners will receive \$15. Stock vegetables and roots this year are distinguished in a separate class from culinary and garden vegetables. The best individual farm display will bring \$25. The best bushel of Netted Gems, grown east of the Cascades, will be awarded \$25. The best display of twenty-five one-tier boxes of apples, five or more varieties of commercial fruit, extending through season will win \$50, and the best general collection of fruits for family use for entire season will receive \$15. Proportionate second and third premiums are offered in all entries.

### Fruits Canned Without Sugar Keep Perfectly

Don't let the shortage of sugar prevent your canning every possible jar of fruit. That is short-sighted patriotism. If you can't go over a thing, go around it. Here are some ways of getting around this particular obstacle which Miss Abby L. Marlatt of the Home Economics Department of the University of Wisconsin offers to Wisconsin housewives:

"Sugar is of no special value in keeping fruit. It improves the color of the fruit and, to most people, improves the flavor when it is cooked with the fruit in the first process of canning. But today, with a world shortage of sugar, the demand on us to use less is such that we can well afford to sacrifice a little color and a slight amount in flavor for the greater need of sugar among our Allies.

"The keeping of fruit is dependent on the killing of any germ life, and that is done by heat. The open kettle, the cold pack, or the three-day method are all good ways to preserve fruit, for, correctly used, they kill germ life.

"The increase in thickness of syrup does not aid in improving the keeping quality of the fruit. Neither does sugar added as a part of the canning process make the fruit any sweeter. As a rule, its sweetening power is less, for the fruit acid changes the sweet sugar into a less sweet type, although it has the same food value as before.

"Fruit juices made as usual may be canned by the cold-pack method without sugar, and will keep perfectly for years. Better than jellies, in fact, for jellies kept for a long time tend to form crystals. When jelly is needed the juice that would have made jelly in the beginning will be fully as satisfactory for jelly making. In addition, the juices may be used for beverages, flavoring in sauces, and in ice creams.

"Fruits may be put up entirely without sugar and, by cooking them in their own juices without addition of water,

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will occupy less space. Some fruits may be dried, thus concentrating the fruit sugars, and again occupying less space. Fruit butters may be concentrated without sugar, or with white corn syrup, or made without sugar."



# BETTER FRUIT

An Illustrated Magazine Devoted to the Interests  
of Modern Fruit Growing and Marketing.  
Published Monthly  
by

**Better Fruit Publishing Company**

407 Lumber Exchange  
PORTLAND, OREGON

**The Fourth Liberty Loan.**—As a hundred years of pressure of competition for world markets might not have done, the war is forcing the United States to rally all of its enormous resources, consolidate them and eliminate the waste which our enemies said would prevent our ever organizing our admittedly overwhelming strength. America and her Allies have been justly surprised by the success which has attended our war efforts, and the Kaiser must acknowledge as one of his most serious mistakes his belief that Kultur controlled enough of our population to keep us out of the fight to retain honor, justice and mercy as essentials to life and happiness. With that fine conviction that the glory of the battle is its own remuneration for whatever cost, the United States, like every champion of a just cause since history began, has plunged into the awful world war with no calculations as to its cost in blood or treasure. And, further, we have countered the demand of the Kaiser for indemnities and territories by the announcement of the policies of "no annexations" and "free self-determination of peoples." The cost of the war must be met, and the approaching Fourth Liberty Loan, which is eight billion dollars, will be the largest single financial feat in the world's history. The United States, bearing largely the financial burdens of the weaker Allies, provided a war-fund program of twenty-four billion dollars a year before the decision to raise the army immediately to five million men. "Lend as they fight" has been proposed as a campaign slogan. The Fourth Liberty Loan campaign will be short, covering but three weeks, from September 28 to October 19, and as every American knows that a subscription of more than twice the size of his share of the Third Liberty Loan is called for, he should be ready with his subscription the day the loan opens.

## PREVENT APPLE SCALD

### PICK WHEN MATURE

Green apples scald worse than well-colored ones. Pick only when mature. Make more than one picking when practicable.

### KEEP COOL

**In the Orchard:** Keep the picked apples as cool as possible. Low temperatures are desirable, but all cooling is valuable.

Keep the apples in the shade. Open packing sheds and storehouses at night. Ship promptly to market or storage.

**In Transit:** Precool the fruit and ship in iced refrigerator cars when practicable.

**In Storage:** Get the apples to cold storage or air-cooled houses as soon as possible after picking.

Open packages cool more quickly than tight ones.

### VENTILATE

**In the Orchard:** Do not hold warm apples in headed barrels.

In case of delay keep the fruit in open crates if possible.

Do not hold in large close piles.

Give the packing sheds and store-rooms plenty of air, especially night air.

**In Transit:** Give the apples as much air as is practicable.

Delay of poorly-cooled fruit in tight cars greatly increases scald and causes heavy losses.

**In Storage:** Apples scald less in boxes than in barrels and less in ventilated barrels than in tight ones, especially if the storage room receives considerable ventilation.

They scald less in well-ventilated cellars and air-cooled storage houses than in unventilated commercial cold-storage plants, but the higher temperatures of the former are, of course, undesirable.

Storage plants that follow the practice of allowing fresh outside air to sweep through the storage rooms occasionally when weather conditions permit, report great benefit in the way of scald prevention.—Office of Fruit Disease Investigations, U. S. Department of Agriculture, Washington, D. C.

"Carry On" is the name of a magazine that is being published by the War Department, under the editorship of Arthur H. Samuels, Captain, S. C., N. A., devoted to the reconstruction of disabled soldiers and sailors. The August edition contains articles by President Wilson, Theodore Roosevelt, Charles M. Schwab and Judge Julian W. Mack. There is no subscription price and no advertising is accepted. President Wilson writes: "There is no subject which deserves more immediate or earnest consideration than the subject of the physical reconstruction of disabled soldiers. It must be gratifying to the country that broadly-conceived plans with regard to this matter are being not only developed but carried out, and I personally welcome every instrumentality which is being used to bring about the proper execution of such plans."

**The Apple Crop.**—The last reports for the apple crop of 1918 show very little change from those published in July. The growing season has been very favorable in the Northwest, and on the whole the quality and size of fruit will be very much better than last year. According to estimates the production in Washington, Oregon and Idaho will be around 20,000 cars of 750 boxes, which is nearly 5,000 cars less than last year, due to the very light crop in Idaho.

"Evaporation of Fruits and Vegetables in the Home" is the title of Extension Bulletin No. 296, just off the press, in which A. F. Barss, assistant professor of pomology, gives sufficiently detailed information to enable anyone to construct and operate an evaporator and to evaporate satisfactorily most of the fruits and vegetables used in the average home. The object in evaporation is to preserve the fruits and vegetables through removal of moisture and to do this with as little change from the fresh state as possible in taste, color, nutritive qualities and general appearance. The particular method used may vary, but the object sought is the same in every case. In some instances there may be a change in color and flavor between the fresh and dried products, but the nutritive value, so far as has been determined, remains practically unaltered, there being merely a concentration of the food material through the removal of water. The principle upon which the process of evaporation is based is that by removing enough of the moisture present in fruits and vegetables, the organisms which cause food to spoil cannot live and grow, thus bringing about preservation. Evaporation will also arrest the natural processes of ripening and decaying.

"The Motor Truck as an Aid to Business Profits," by S. V. Norton, is the title of a book recently published by the A. W. Shaw Company of Chicago. Mr. Norton has been very closely associated with the motor-truck industry for many years. As manager of the Truck Tire Sales Department of the B. F. Goodrich Company he has had many opportunities to study the various problems that motor-truck owners have to contend with. Every concern that is not already equipped with motor trucks for delivery; every fruit grower and farmer who is doing his hauling by the old-style method should read this book; and we would also advise many of those who are already using a truck to read it. There is no type of truck that is not covered in this book.

Elsewhere in this edition appears an article on walnuts by Ferd. Groner, who is one of the most successful walnut growers of the Northwest. Nuts are very nutritious and at the same time a very excellent food, and can be used in many different ways. Every fruit grower should plant a few walnut trees, which will not only help to lessen his living expenses, but there is a big demand for nuts and splendid prices are being paid, so that he can sell to excellent advantage whatever surplus he can produce. Many sections throughout the Northwest are particularly adaptable to nut culture.

The pear crop of Wenatchee promises to be much larger than last year, estimated at around 400 cars. On the local market pears are bringing from \$50 to \$55 per ton. Practically the entire crop is contracted for.



BETTER FRUIT is in receipt of a letter from the Oregon State Library, Salem, giving the titles of a number of books that may be borrowed from the State Library free of charge. Every fruit grower who is anxious to obtain some good reading matter should write the librarian of the Oregon State Library for full particulars. Among the books that may be obtained are works on horticulture, vegetable gardening, soils, pests, poultry, bee culture. There is also a splendid list of the latest war books by such authors as Sir Gilbert Parker, James Watson Gerrard, Hugh Gibson, Bruce Baird, Harold R. Peat, Ian Hay and many other noted writers. A list of these books may be obtained by writing the library.

A very valuable article appears in this edition on "Pear Blight," by Professor C. C. Cate of Medford. Professor Cate's work is carried on in connection with the Oregon Agricultural College. Pear growing has been very successful in the Northwest and pear orchards are paying a splendid profit. Sections that are especially adapted to pear growing as to climate and soil condition are comparatively limited. In many sections pear blight has been very severe, and particularly in states in which the climate is very warm during the summer months. It is hoped with the present methods of control and the possibility of eradication that pear blight will be eliminated. Every pear grower will be interested in reading Professor Cate's article in this edition.

The Washington State Fair will be held at North Yakima, September 16 to 21. Horticulture is one of the big features of the Washington State Fair—the exhibits of fruit are always very extensive, and every fruit grower who can possibly leave should take a few days' vacation and attend this fair. It affords growers a splendid opportunity to see the up-to-date methods and the improved ways of handling his crop.

The Oregon State Fair will be held September 23-28 at Salem, and promises to be one of the largest and best ever held. There will be many special features that will appeal to every fruit grower. Splendid camping facilities are provided for those who desire to camp out. Horticulture is one of the principal industries of the state and every fruit grower should endeavor to make an exhibit.

**Box Strapping.**—There must be no waste this year; therefore boxes must be securely nailed, and for export shipment must be fastened securely with box strapping. It costs very little and if used more would save the growers very heavy losses each year.

Fruit growers should not wait until the day they commence picking apples to look over their buckets, ladders and equipment they may need for harvesting their crop. Growers who have no grading machines should give that matter immediate attention. A good grading

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machine will pay for itself in one year with a few thousand boxes of apples. There are several makes manufactured in the Northwest, and a postal card addressed to any of these firms will bring circulars and a full description, so that the grower will be able to decide which kind he wishes to purchase. Growers should purchase their supply of ladders, buckets, nailing presses, paper and all supplies, so that no time may be lost when the apples are ready for picking. There are several firms advertising in BETTER FRUIT that carry a full line of orchard supplies.

Line up and sign up on National War Savings Day.

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## Walnut Industry in the Northwest

By Ferd. Groner, Hillsboro, Oregon

A FEW words about the walnut industry in the Northwest may be interesting to many who have given this subject some study. This, like most comparatively new industries, has its ups and downs. Some have become discouraged, while others have profited through experience gained by mistakes, and we are more confident than ever that walnuts are an unqualified success here in the Northwest.

A few conclusions have been reached which are fairly well decided. That is that many have planted walnuts on land that was too wet, and that they bear better on rolling foothill land than on the level valley, even though it has good drainage, as these higher locations are less likely to damage by frosts in fall or spring. It has also been proven that English walnuts topgrafted on a black walnut that is growing on wet land will not succeed any better than planted English walnuts, though the black grows perfectly. It has also been proven that the so-called "late starter" can be successfully grafted to normal starting varieties. Quite a large number of these have been grafted and the older ones are now in bearing. One very late one which last season did not start to leaf out until about August 10th was grafted this season about the middle of May. At the present writing (July 21) the grafts have made a growth of from twelve to twenty-four inches in about two months from date of grafting.

More interest is being taken in top-grafting. Many blacks and poor seedlings have been worked over in the last few years, of which there are many thousand in the Willamette Valley. Some seedling growers are working over their poorest trees, while others are top-grafting their whole orchard. Very few seedling trees are now being planted in orchards, though quite a few are still being planted for shade trees and around the farm yards by those who do not know the difference.

The production of walnuts is increasing rapidly by reason of the older orchards increasing their crops and new ones coming into bearing.

There has been considerable argument in regard to whether a walnut orchard should be treated as our well-cared-for-fruit orchards or treated as forest trees after the trees have reached considerable size. While most of us cultivate our walnut orchards we know of many large trees bearing heavy crops annually which receive no cultivation at all; some of them in barnyards, along roadsides, where the stock has tramped the ground as hard as the road. We also have some rocky ground, unfit for cultivation, that is giving good results by mulching, even while the trees are young. It might be well for some of us to try some of our older orchards by this method and compare results.

Considerable interest has been taken in the last few years in walnuts as

shade trees and no doubt this interest will increase, as they make a good shade tree, besides being ornamental and bearing a useful crop. Last fall a resident of McMinnville exhibited nuts gathered from six trees on a city lot. Two trees grew inside the lot and four along the curb. The street is asphaltum pavement and the sidewalk is cement, and only a very narrow strip of earth was left for the trees. Yet the market value of the crop was sixty-eight dollars. Instead of these trees detracting from the beauty of the place they add much to the attractiveness of the home. Curb trees should be headed high so the branches will not interfere with travel.

There is a wide difference in opinion as to how high a walnut tree should be headed in a commercial orchard. Some favor as high as seven or eight feet, while others insist that three or four is better, by training the lower

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branches at an angle almost vertical, that a stronger tree can be made; while still others contend that the center-leader tree is best. Starting the lower branches at medium height of about five or six feet and training a much larger number of branches from the main stock up to several feet from the ground, instead of starting from three to five from near one point. This center-leader tree is by far the strongest, as the branches usually come out at nearly a right angle and form a strong union with the main stock, while branches coming out at a high angle are much more likely to split from the trunk.

Walnuts are much more likely to split than other fruit trees, as the branches often come out at sharper angles, which are usually weak unions. It is better to cut out these branches with weak unions the first year or two, even at the expense of the shape of the tree, for sooner or later they will break down. Weak forks can be strengthened by driving through a good-sized nail, long enough to reach through both branches above the fork and clinch the point; but still better is a bolt of three-eighths soft iron or steel and clinch both ends. The iron rod is the best, as it can be cut the right length and both ends clinched. Holes should be bored for a bolt or rod. Many fine trees have been lost or ruined from lack of a little attention in time to save them.

Much has been said about trying to find new varieties but no one feels it his duty to try out promising seedlings in a way that will show their true value. Though a tree in an orchard may be a good producer of fine nuts it may not bear at all when set alone. It may not bear regularly or it may have other failings, such as a weak grower or blight badly, any one of which would make it undesirable.

So far, the Franquette is the favorite here in the Northwest. The Mayette is favored by some, but we find so many different types of so-called Mayettes that the true old French type would seem foreign to many of them. After years of trial we cannot favor the Glad, Meylan or Kirk for a commercial orchard and we doubt the advisability of planting Meylan or Glad for pollenizers for the Franquette or Mayette. Two varieties that seem to be promising are the Wiltz Mayette and Marstner, but only time will tell.

Out of a number of crosses between the Franquette and Payne, and the Franquette and Meylan, four of them seem to be promising and are bearing a good crop of good-sized nuts this season. These deserve a longer trial under conditions that will prove their real value as a commercial nut. We also have several dozen crosses at different stages of trial between the following varieties: Franquette, Mayette, Meylan, Glad, Sturgis Mayette, Wiltz Mayette, Parisienne, Marstner, Kirk, Wilson's Wonder, Eureka and Walton. Several of these were crossed both ways. It takes about ten years to prove the value of the experiment. The Franquette is now about 150 years old and yet the

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leading variety here in the Northwest. There have been hundreds of thousands of crosses since and none have proved better, so our chances for betterment are comparatively slim. Crossing for a purpose and not by chance is more likely to bring improvement.

The question that confronts most of the would-be planters is: Will the walnut bear in paying quantities here in the Northwest? To this I would say much depends on location, variety, care and a number of other things that might make success or failure. There are a large number of trees growing along roadsides and in farm yards that have been topgrafted and are producing heavy and regular crops, several averaging from 50 to 250 pounds per tree, and have not missed a crop since they began to bear from seven to nine years ago. The highest production per acre that we have any record of is right here in the Northwest.

There are no grafted orchards in the Northwest old enough as yet to prove just what they will bear. Practically all the grafted Franquettes that were eight and nine years old in 1916 bore heavy crops, but the early October frost that year damaged the trees on all the

level Willamette Valley land where most of these orchards were located, so that the 1917 crop was light; but this season finds them with a good crop again.

Some were discouraged on account of the damage done by the frost of 1916. We must expect some discouragements. Our spring grain crop is almost a failure in the Willamette Valley this season, but should we be discouraged and not plant again next season? We have had our fall wheat frozen out several times. I well remember when one of my neighbors had his fall wheat frozen out twice in succession. He became discouraged and did not plant any for seven years, during which time the winter wheat was not damaged, so he thought he would take a chance again. And it froze out again. So he has been planting ever since and took the chance. At this writing, after fifteen years of experimenting and study, I am more thoroughly convinced than ever before that walnut growing is now and will be an unqualified success here in the Northwest.

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Walla Walla, Washington—September 9-14.  
Goldendale, Washington—October 2-5.  
Helena, Montana—September 9-14.  
**Washington:**  
Ritzville—September 26, 27, 28.  
Lynden—October 4-5.  
Colville—September 12, 13, 14.  
**Oregon:**  
Dallas—September 17-19.  
Fossil—September 19-20.  
Gresham—September 17-21.  
Moro—October 9-12.  
Scio—September 17-18.  
Portland—November 18-23.  
Pendleton—September 19-21.  
St. Helens.  
**Idaho:**  
Lewiston—November 7-13.  
Filer—October 1-5.

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The Evaporation of Apples

Continued from page 9

through minimizing the hand trimming that will be required. A reduction in cost of operating at this point may prove to be the deciding factor between making money in the business or running at a loss.

From the peeling machine, the apples should be trimmed by hand when needed, and then pass with the least possible delay into the sulphur box or bleacher. The purpose in this step in the evaporation is not to whiten the apples but merely to prevent oxidation with the resulting discoloration. Any darkening which occurs in the peeled fruit prior to entering the sulphur box will remain uncorrected, which shows the danger of delay in handling at this point. A continuous bleacher is the most satisfactory and requires very little power to operate. Experience alone will determine the amount of sulphur to burn and the length of time the fruit should remain in the bleacher, an average estimate for whole apples being forty-five minutes. Leaving the trimmed fruit in a weak salt bath for a few minutes will lessen the time of sulphuring, but this method has not been used extensively up to this time. Where the apples are to be made into

Make a Profit on Waste Apples

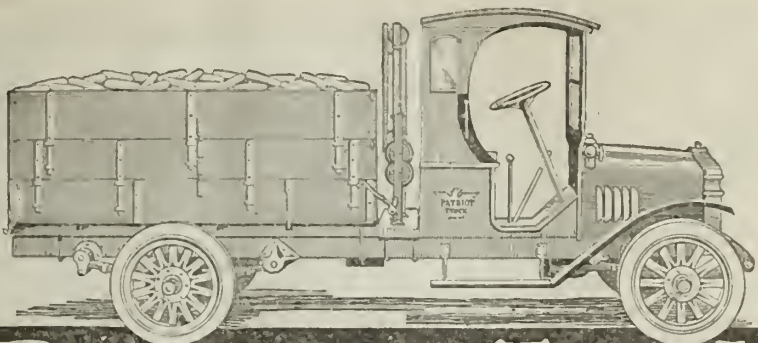
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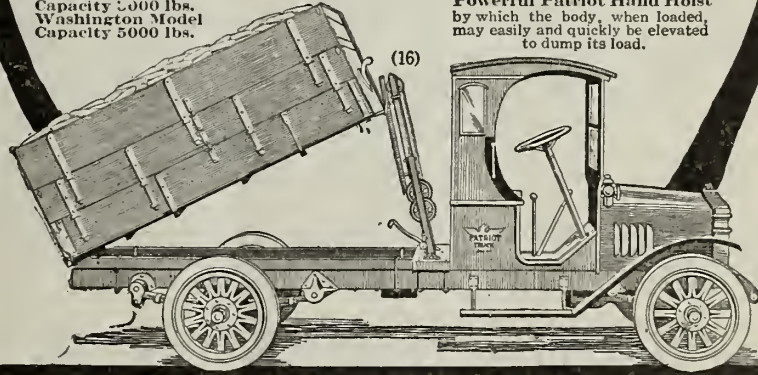
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rings, the whole apples generally pass directly from the sulphur box to a special hand or power machine which slices the fruit across the core hole into whole rings, three-eighths to five-eighths inch thick, unless it is the intention to dry the fruit whole or in quarters, which is sometimes done. The slices are next spread evenly over the slatted floor by means of a wooden rake, or by hand where trays are being used.

Although the time required to dry any one lot may be reduced by spreading less fruit on the floor, the ordinary depth is four to six inches. The fire should be started below the floor long enough ahead of time so that drying will commence as soon as the floor is ready.

The generally accepted temperature for drying is approximately 135 degrees Fahrenheit at the start, running up to about 175 degrees at the finish.

The matter of temperature control is very important and in order to successfully maintain the desired heat reliable thermometers should be used, these being placed where they will record the temperature at the bottom of the

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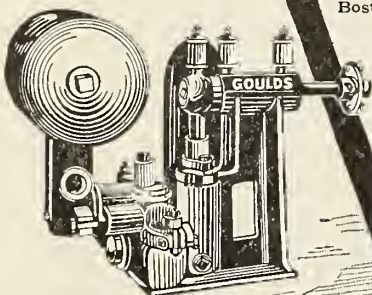
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pile of fruit, so as to avoid the danger of scorching. After the slices are tough enough to stir, which will be after the first three to five hours, they should be turned with a wooden shovel or scoop, by making a path down one side, throwing these slices to the other side, then walking back and forth, filling in the furrow each time until the entire floor is turned. To prevent stieking and scorching this should be repeated every two hours at first, later shortening the interval between until toward the end of the period the fruit is turned every half hour. The actual time of drying by this method depends upon many factors, as humidity, air circulation, size of pieces, amount spread on the floor, etc., but generally requires from fourteen to twenty hours.

Experience will soon demonstrate when the fruit is dried. If on pressing a freshly-broken end of a slice, moisture oozes out more time must be given. Another test is to dry the slices until they are springy and elastic, not brittle, so that when a handful is squeezed the slices will separate apart upon opening the hand. Some states use a moisture determination, allowing 27 per cent moisture upon drying for four hours at the temperature of boiling water, but this is hardly safe—a maximum of 25 per cent giving much less spoilage.

The yield to be expected will depend upon the variety and on the final moisture content. A figure which might be accepted as average would be about 250 pounds dried to the ton fresh, or, stated in pounds to the bushel, 6½ pounds of the dried white stock and 3½ pounds dried waste (parings, trimmings and cores) to each bushel fresh.

The waste, as well as the "chops" (those apples, chopped, which are too small or too disfigured to peel) are often dried, later to be soaked and worked up into vinegar, jellies or fruit butters, wherever the state laws permit this practice. Or, again, the fresh waste may be made directly into these forms of by-products, and the fresh pomace used for stock feed. The waste from good-sized apples is always less than from poorer stock, it running about 14 pound to the bushel as contrasted with 16 pounds from culls.

After evaporation is complete, the dried apples are cured by piling not too deep in dark, insect-proof bins, where they are shoveled over every two days for two or three weeks until the product becomes uniform throughout.

No man, however, enjoys running a business at a loss. Of even greater importance, then, than merely knowing how to evaporate apples properly is the ability to do the work profitably. The cost of evaporation depends upon so many and so variable factors that no one estimate will serve for all cases. There are always, however, certain definite charges to be met such as interest on investment for buildings and equipment, taxes, insurance, depreciation, while in addition to these are the operating charges as fuel, sulphur, labor, etc. Knowing the fixed and fluctuating costs that are chargeable against the finished products, it is im-

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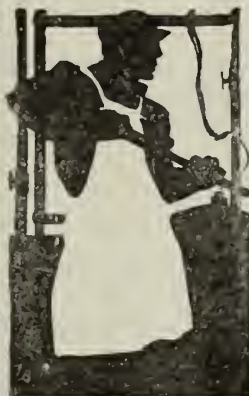


portant that these be reduced to the lowest limit consistent with good work. It should further be made a matter of reasonable certainty what the buyers will be willing to pay for evaporated stock. The fresh market should be studied as carefully as the other, for the two will to some extent be in active competition. In some such way, by exhaustively analyzing the possibilities of this business the same as any other enterprise, a man can soon decide such questions as whether he can afford to evaporate his apples at all, what he can pay his neighbor for his apples, just how high a grade of apples he can handle in this way, or whether after all in his own particular case it would not be more economical to turn the apples off for hog feed.

#### Pulping Fruit

Every housekeeper is anxious to build up safe reserves of fruit and vegetables for winter, and a good provider takes justifiable pride in well-filled shelves. To such women the 25-pound allotment of sugar, or even a more generous allowance for canning, will not provide a safe margin unless there is a careful allocation—so much sugar for cherries, and so much for peaches—and this program backed up with generous supplies canned without sugar. England has adopted a method of preserving fruit without sugar, known as "pulping," that is employed both commercially and in the homes. This method is economical of jars, as no water is used in canning the fruit. The method, according to the Bulletin of the Royal Horticultural Society, is as follows: Pack sterilized jars full of fruit, add no water, place rubbers and caps in position, and fill pan with water up to the shoulders of the bottles. Place pan on fire and bring water to the simmering point and keep it at this point half an hour. Remove bottles and fill them one from the other, replace rubbers and caps, and put the bottles back in the pan and bring them up to the simmering point again for another five minutes. Take them out one at a time and screw down the tops. Invert to cool and test the joints. Wrap in paper to prevent bleaching and store in a dry, cool place. Cooking the fruit before bottling is a simple method of pulping, but the fruit will be darker than if the above method is followed. This method is as follows: Place fruit over a gentle heat until enough moisture comes out to prevent burning, then increase the heat until the fruit boils. Boil an hour, stirring all the time, and can, following usual methods of sterilizing. In putting up apples a little water will have to be added to the fruit to prevent burning. Pulped fruit can be used for jam, stewed fruit, puddings and pies. The English housewife who has to be very careful of sugar makes up pulp into jam one jar at a time, allowing half a pint of sugar to a pint of fruit. This does not make so sweet a jam as the usual quantity of sugar, but as this English woman writes, "It is quite good enough and in these days jam of any kind is almost a luxury."

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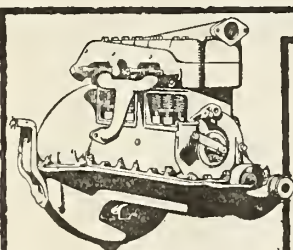
Continued from page 8

packed boxes, from any given quantity of loose fruit received. The weight of a box of apples varies not only with the variety of the apples but with the size of the fruit, the style of pack, the season of the year, the bulge on the box and many other factors which cause variations and therefore make the adoption of a satisfactory arbitrary weight almost impossible.

Until the packing of a variety is completed all fruit accounts should be carried in terms of pounds net weight rather than in terms of boxes. When all the fruit of any variety has been received and packed out we then have the fruit recorded as so many pounds of apples against so many boxes of that variety actually packed out. Then the total number of pounds divided by the total number of boxes packed gives the exact average weight per box for the variety. Each grower's account having been carried in terms of pounds for each grade and each break in a grade, there remains only to divide his total for each grade and break by the weight per box so secured to secure the exact number of boxes to which he is entitled, and the grade and size of all fruit. If the weight is not determined in this way, the grower will be charged with more or with less boxes than were actually packed. An arbitrary lower than actual weight would give a larger number of boxes than actually packed out, it would be unfair to the grower in every case where a flat rate on any service prevailed. He would pay for packing boxes never packed; for paper, nails, boxes and labels never used; for storage and handling on boxes never stored or handled. Then when the returns are in, it is necessary to distribute the returns over a lot of boxes which never existed and the returns per box are very greatly reduced.

With an arbitrary weight greater than actually found the conditions reverse themselves in every case, and the warehouse finds itself using boxes, paper, nails and labels for which it receives no payment and paying for packing for which it is not paid. The large arbitrary means loss to the warehouse in every operation conducted on a per-box basis. On the other hand, the money from a pool is divided amongst a small number of boxes, therefore the price per box as reported would be larger than the actual returns. These discrepancies are all averted by the use of the system recommended rather than by use of the arbitrary weight. The charges are just; the returns are correct, and the work of handling each account is minimized. Your work would then stand the scrutiny of a certified public accountant.

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# ZEROLENE

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ber of a fruit pool is protected against severe personal loss by the guarantee that all members of the pool will bear a proportional share of the loss for the general protection and welfare of the community. The system of pooling in most common use includes the entering of all fruit on one variety into a common pool, making each grower or unit in that pool safe from severe loss by the distribution of such loss to all members of the pool. Each member then receives a fair return for all fruit of this variety when compared to the price received by all other members of the pool. However, many still continue to return to Extra Fancy the money received for Extra Fancies and to each of the other grades the same. Any loss which is received by any grade is borne alone, with the result that frequently one of the grades makes much poorer returns than its actual comparative value justifies. This is the exact parallel of the non-pool system of shipping for growers. If Jones ships a car of apples and it meets with an accident, becomes frozen or scalded, strikes the market at a bad time or meets with any one of a dozen or more conditions which might cause the fruit to sell below its just value, with the non-pool system Jones stands the whole loss. With the non-pooling of grades the same condition exists. It is a common occurrence for cars to get in wrong, and this frequently causes the sale of Extra Fancy at prices lower than the C grade. It is wholly possible that the closing of a variety pool may show the returns per box for C grade larger than the returns for Extra Fancy; this in face of the recognized margin of valuation between the two grades. For the interest and stability of the community and industry each grade of a variety should be entered into a pool to guarantee that a just value should be returned to each grade in proportion to the value returns to the other grades. With this idea in mind, the Bureau of Markets recommends the use of economic valuations in arriving at just returns for the different grades of fruit. In accordance with this recommendation all money for each variety should be pooled together and the arbitrary differential in connection with the economic values furnished by the Sales Agency should be applied in order to obtain the correct value for each grade and break in size. This does away with the necessity for carrying each break in size separately all the way through the books, thereby eliminating much work.

The next important feature in connection with the packing house is the building itself, which should be built in connection with the storage if possible. The material used generally consists of hollow tile, brick or frame building properly insulated. The building should be such in any case that the fruit would not continue to ripen after delivery to the plant. The size of the packing shed should be about 10,000 square feet for each hundred cars, with sufficient storage to handle the fruit after being packed. The equipment at the house depends on the method of

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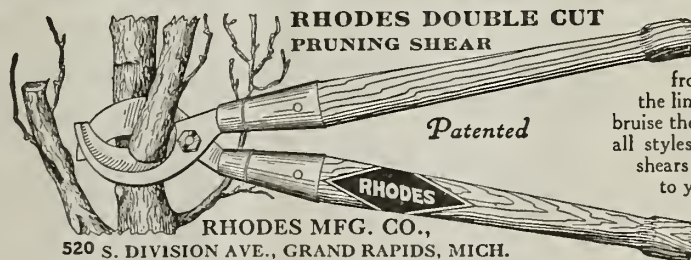
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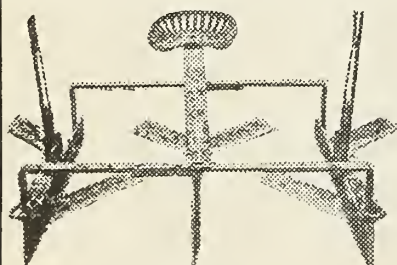
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**Greatest Weed Cutter on the Market Today**

Cuts seven feet or less, weighs 230 pounds and is all made of steel. The Golden Gate Weed Cutter is the greatest of its kind on the market. For workmanship, simplicity and durability it cannot be excelled, as it does its work to perfection. Those who are using it say that no money could buy it if they could not get another. It not only cuts all kinds of weeds, but cultivates the ground as well. One user said that it has saved him \$200.00, as he did not have to plow after using.

Write for free descriptive circular and list of testimonials from those who have purchased machines and praise it in every way.

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**CORNER FIRST AND OAK STREETS  
PORTLAND, OREGON**

receiving. If the fruit is taken in by weight two wagon scales should be installed for weighing. If the individual system is used there is no need of this equipment. In any case a 20-foot conveyor may be used to good advantage at the doors for facilitating the unloading. In our own plant we consider these conveyors the best paying investment we have in equipment. If the fruit is being packed on the second or third floor an outside escalator or two are used for the purpose of getting the fruit into the house.

The next equipment in general use is the sizing machines. Around the sizing machines are placed conveyors for carrying packed fruit to the nailers. From the nailers another short conveyor is used from which the fruit is segregated into varieties, grades and sizes. From this point trucks are used in carrying the fruit to different parts of the storeroom when the storeroom is on the same floor. If the packing is done above the storage rooms the conveyor can be used to carry the fruit to a shoot which leads to the basement, where the fruit can be segregated and stacked in the proper place.

One important part of the equipment we have failed to mention is motor trucks for delivering fruit from the orchard to the shed. These trucks should be owned and operated by the organization. By having large trucks much time can be saved at the receiving door and the fruit can be brought to the shed in an orderly manner. Where trucks are used in hauling and they are operated night and day, one-third of the waiting at the door can be eliminated.

The central packing shed holds an economic position in each fruit community which cannot be equaled by any other similar institution. Through its operation greater economies may be effected for the general welfare of the community, and the fruit output may be placed upon a more uniform and stable basis than by any other means. Central packing sheds may reach the highest point of efficiency, economy and accuracy under the weighing-in system of receiving loose fruit and distributing the returns therefrom under the doubly insured system of economic valuations for all grades and breaks in grades. Under such a system the product becomes uniform in all details, and the returns to each grower and to each grade are uniform and just.

Because of so many hundreds of acres of timber being cut for war purposes, it means there will be a big demand for stump pullers and blasting powder to get rid of the stumps, so as to get the land under cultivation as rapidly as possible. Every fruit grower who has any stump land should begin as early as possible to clear, because of the very high prices that are being paid for all foodstuffs no one can afford to have any idle land.

Remember, the men in our Army and Navy do not expect luxuries. Should we at home expect them? Buy necessities and War Savings Stamps.



# Keep Your Liberty Bonds

**H**OLD to that bond. You invested to help send the boys across. They are over now, at grips with the German monster. You expect them to hold on—hold on till the last vestige of autocracy is crushed out of him. Then you, too, must hold on—must keep your enlisted dollars invested on the fighting line.

It isn't the hooray of a campaign that wins a war. It's the will to hang on, to make sacrifice today, that tomorrow may bring victory.

And your investment. Those bonds are the safest investment you ever made. Don't be lured into exchanging them for the "securities" of some suave get-rich-quick operator. Big returns may be promised, but the bigger the promised returns the bigger the risk.

If you have to have money, take your bond to any bank and use it as collateral for a loan. There is no security the banker would rather have—nothing on which he will lend more willingly.

Don't use bonds to buy merchandise. The average merchant, accepting your bonds in trade, sells them immediately, thus tending to lower their market price and taking away from the buyer of your bonds the ability to lend a corresponding amount of money to his Government. Liberty Bonds are meant to help your country at War; are meant for investment and to provide an incentive for saving and an income for the rainy day.

Hold fast to your Liberty Bonds. Hold fast for the sake of the boys "Over There". Hold fast because it is good business.

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PORTLAND, OREGON



*The World*

*Our Orchard*

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# PRIVATE SALE vs. AUCTION

Experience has demonstrated clearly the manifold advantages of sale by private treaty, which method is now acknowledged on all sides to show more satisfactory results than the auction.

Assuming that you are anxious to dispose of your fruit in the best possible manner and to the best possible advantage we, as **PRIVATE SALESMEN**, have no hesitancy in laying our claim before you.

Whether you prefer to sell your fruit on an outright f.o.b. basis or prefer to have it handled for your own account on a consignment basis, both of which methods are entirely agreeable to us, the fact remains that the firm of

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is in position to give you the best possible service. Our reputation of  
“Never Having Turned Down A Car”

although practically 90% of our business is done on an outright purchase basis, is a record of which we feel deservedly proud.

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*Our Market*

*The World*